REMARKS

By this amendment, claims 1, 6-11, 15, 16 and 21 are amended, and claim 5 is cancelled. Support for the above amendments is provided for by the specification and drawings. No new matter has been entered. Accordingly, claims 1-4, and 6-23 are pending in this application.

The Applicants would like to thank the Examiner for indicating that claims 6-11, 17 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form. However, in view of the above amendments and remarks below the Applicants believe that presenting these claims in independent form is unnecessary at this time.

The Examiner has rejected claims 1-3, 5, 13-16 and 19-22 under 35 U.S.C. 102(e) as being anticipated by Kondo et al (RE 38,072). Claims 1, 4, 5, 12, 14-16 and 20-23 are rejected as being anticipated by Bona et al (US 6,768,857).

In the Office Action, the Examiner points to claim 4 of Kondo et al. for disclosing the recited invention of claim 1. Claim 4 of Kondo et al. relates to a fabrication process for a semiconductor device such as an optical wave guide that requires that the composition of matter (containing "at least a nitrogen-containing alloy") be adjusted so as to partially offset the build up of adverse interfacial strain. Kondo et al. adjust the lattice strain in a multilayer stack by inserting a nitrogen-containing metal alloy layer into the stack. See claim 3 of Kondo et al. from which claim 4 depends. Thus, Kondo et al. is similar to other prior art disclosed in the Background section of the patent application. In particular, Applicants note that the method of Kondo et al. is limited to a *selection* of specific materials, and relies on adjustment of the interlayer stoichiometry, thickness, and process conditions. The method of Kondo et al. thus requires extensive materials studies and evaluations with commensurate trade-offs in device performance. However, Kondo et al. do not teach or suggest adjusting or altering a pre-existing stress level in a composition. In particular, Kondo et al. do not teach or suggest, inter alia, inducing stress by patterning the material with an instrument to cause some amount of atomic level rearranging in the material as now recited by amended independent claims 1, 16 and 21.

Furthermore, in the recited method a change or adjustment of the composition of matter within an interlayer is neither necessary nor even desirable. The decrease in strain is achieved by patterning the surface of the interlayer with an instrument in a precisely engineered fashion and requires no adjustment of the chemical composition of matter. The precise pattern, dwell, time, power density, etc. are engineered and controlled to produce either a stress-free interface or an interface with some desired level of stress that may be required to meet an engineering application. However, this is done *without changing the composition of matter within an interlayer* as taught by Kondo et al. Also, since the recited method does not require an investigation of the effects of composition change on stress and performance it may be implemented in a more straightforward manner and is applicable to all materials, i.e. not just those (III-V) group elements of interest in semiconductors as disclosed by Kondo et al..

Bona et al. also relates to a fabrication process for an optical device that includes multiple layers of semiconductor compositions. Bona et al. disclose choosing suitable refractive indices and thermal annealing cycles to achieve the required stress free condition or to achieve a condition of final stress within the waveguide that gives rise to some desirable optical performance such as in the birefringence. Bona thermally anneals entire cladding layers in an optical wave guide to alter the net stress, thereby changing the refractive index of the optical wave guide after annealing. Bona uses selective thermal ranges in the annealing process to permit either the formation or the relaxation of bonds between atoms in the cladding layers. See col. 9, lines 15-39. Alternatively, Bona teaches adding multi-compound materials to the cladding layer material in order to alter stress. See col. 9, line 40 - col. 10, line 6. Thus, Bona et al. pertains to achieving refractive indices in waveguides by producing a "bulk" stress throughout the cladding layers and therefore is similar to other prior art disclosed in the Background section of the patent application. Bona does not teach or suggest, inter alia, inducing stress by patterning the material with an instrument to cause some amount of atomic level rearranging in the material as now recited by amended independent claims 1, 16 and 21. Hence the control of stresses by patterning as recited in the claims is fundamentally different from the bulk art taught by Bona et. al.

CONCLUSION

Applicants respectfully submit that the present application in view of the above amendments and remarks is in condition for allowance. The Examiner is encouraged to contact the undersigned to resolve efficiently any formal matters or to discuss any aspects of the application or of this response. Otherwise, early notification of allowable subject matter is respectfully solicited.

Respectfully submitted,
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